the patient's analgesic intake over the previous ten years. Sometimes it is necessary to obtain this history from a friend or relative, since the patients rarely are honest regarding their intake of analgesic drugs.

Since urinary infection is a common secondary phenomenon in patients with analgesic nephropathy, it is important not to mistake the urographic findings for those of pyelonephritis. Patients have been misdiagnosed as having "chronic pyelonephritis" because of this association. When a club-shaped calyx is found in the presence of a smooth renal outline, papillary necrosis rather than atrophic pyelonephritis should be diagnosed. Occasionally sloughed papillae will remain *in situ* and calcify, appearing as typical ring-shaped calcifications on the plain film.

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REFERENCES

Abel JA: Analgesic nephropathy—A review of the literature, 1967-1970. Clin Pharmacol Ther 12:583-598, Jul-Aug 1971

Lindval N: Renal papillary necrosis—A roentgenographic study of 155 cases. Acta Radiol, suppl 192:1, 1960

Hare W: Scientific exhibit, First Asian Oceanian Congress of Radiology. Melbourne, Australia, Nov 1971

A Diagnostic Approach to Renal Mass Lesions

RECENT EXPERIENCE here and abroad shows that percutaneous puncture is a reliable means of diagnosing simple renal cysts. Exploratory operations for diagnostic purposes should be necessary in rare instances only. For the radiologist the problem has become one of selecting from all patients with renal masses those who are suitable for puncture—that is, those who are likely to have renal cysts. Although nephrotomography and angiography are accurate most of the time, neither is 100 percent diagnostic since avascular tumors may mimic renal cysts.

Ultrasonic B-scanning has become a reliable means of determining whether a renal mass is solid, cystic, or mixed. The streamlined work-up of a patient with renal cyst consists of the following steps: (1) establish the *presence* of a renal mass by urography or tomography or both, (2) establish the fluid-filled nature of the lesion by ultrasound, and (3) cyst puncture. With this approach, most patients with renal cysts need not have multiple view nephrotomography and arteriography. In lesions where the echo is indeterminate, mixed or solid, angiography is performed and the decision as to puncture or to operate can then be made.

After aspirating a portion of the cyst fluid for diagnostic purposes, water-soluble contrast medium is injected and cyst filming is carried out to assure that the cyst punctured accounts for the entire mass demonstrated on the urogram The diagnosis of tumor within a cyst is made on the basis of the findings in the aspirated fluid and may or may not be corroborated by the renal cystograms.

When the fluid aspirated from a cyst contains new or old blood and all the analyses of the fluid fail to demonstrate signs of malignancy and the cystogram is normal, the subsequent management may be open to debate. Although approximately 75 percent of these hemorrhagic cysts will prove to be benign, the experience with this type of lesion is too limited at present and, in good risk patients, surgical exploration is advisable to rule out tumor.

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REFERENCES

Asher WM, Leopold GR: A streamlined diagnostic approach to renal mass lesions with renal echogram. J Urol 108:205-208, Aug 1972

Jeans WD, Penry JB, Roylance J: Renal puncture. Clin Radiol 23:298-311, Jul 1972

Increased Sensitivity of 99mTc-Diphosphonate Over Radiography in Skeletal Imaging for Metastases

OSTEOBLASTIC LESIONS are perceived in conventional radiography only when the calcium concentration exceeds normal by at least 30 percent. The dense appearance of these lesions may persist even after clinically favorable response to therapy. Nuclear medical imaging, on the other hand, is not only more sensitive in detection, but also shows changes in the accumulation rate of radioactivity in the lesions reflecting success of the therapy.

The sensitivity of radioisotope techniques results from accelerated ionic exchange of the radionuclide with the crystal of bone in the lesions as compared with non-involved skeletal structures. Ethane-hydroxy diphosphonate labeled with technetium-99m is the currently preferred agent for radionuclide imaging of skeletal metastases. This localizes in the calcium hydroxy-apatite crystal of bone by chemisorption. Strontium-85 and strontium-87m exchange with the calcium of the crys-